

Microwave Background Anisotropies

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Abstract

Title: THE PRIMORDIAL STRUCTURES INVESTIGATION (PSI)

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PSI is a mission to measure the anisotropies in the Cosmic Microwave Background that has been proposed in response to the NASA Announcement of Opportunity for a medium-class Explorer mission (MIDEX). PSI is based on state-of-the-art HEMT transistor amplifiers operating at cryogenic temperatures, and will measure the entire sky in a two-year mission at frequencies up to 90 GHz, angular resolution up to 12 arcmin, and sensitivities of 20 microkelvin or better at each resolution element. The goal of the PSI design has been to achieve maximum performance in angular resolution and sensitivity within the constraints of a MIDEX mission, while minimizing overall risk. The instrument, space craft, and mission designs will be described.